

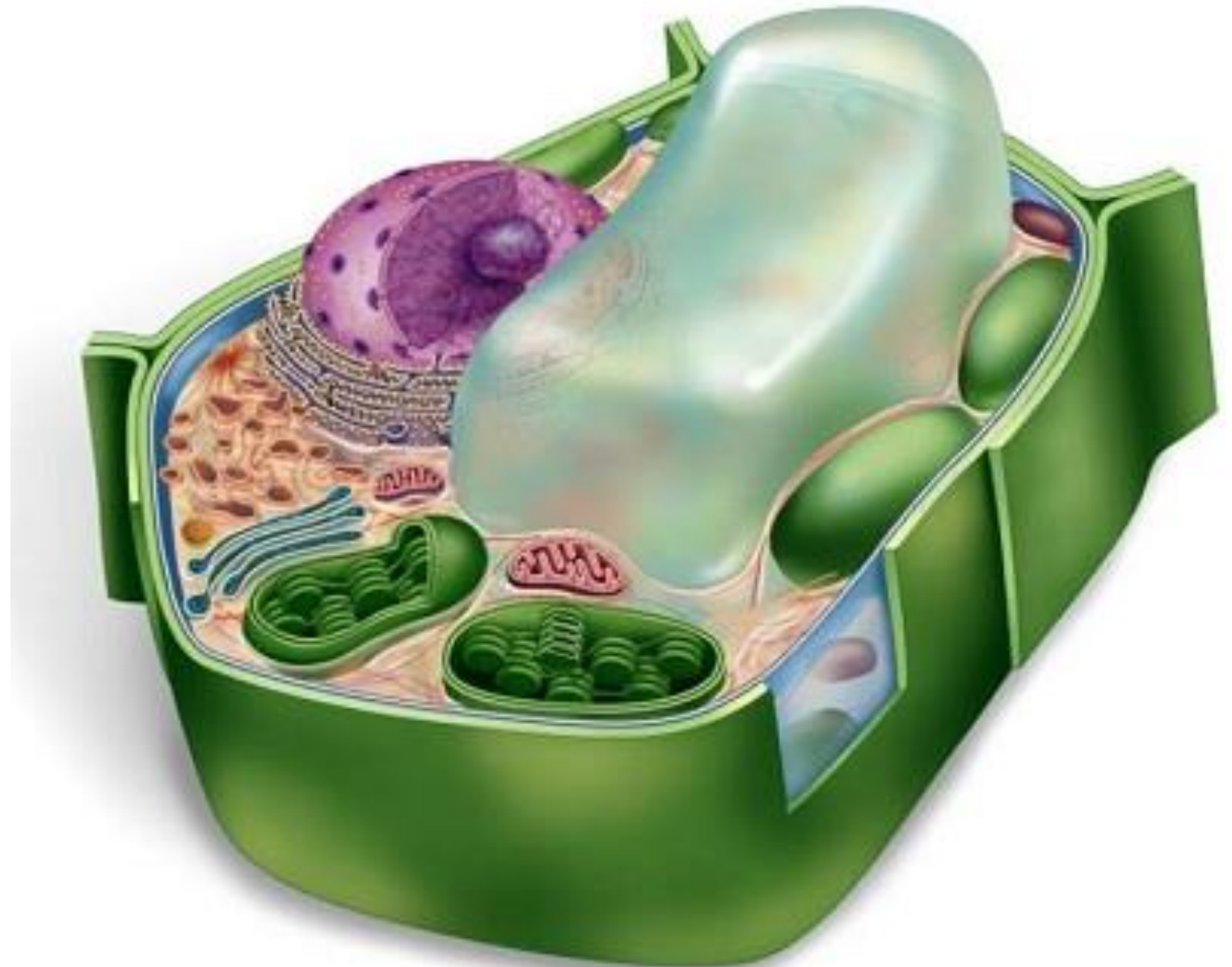
EUKARYOTES AND CELL DIFFERENTIATION

- **TOPIC: Eukaryote Cells**
- **ESSENTIAL QUESTION: What role do organelle play in cell fuction**

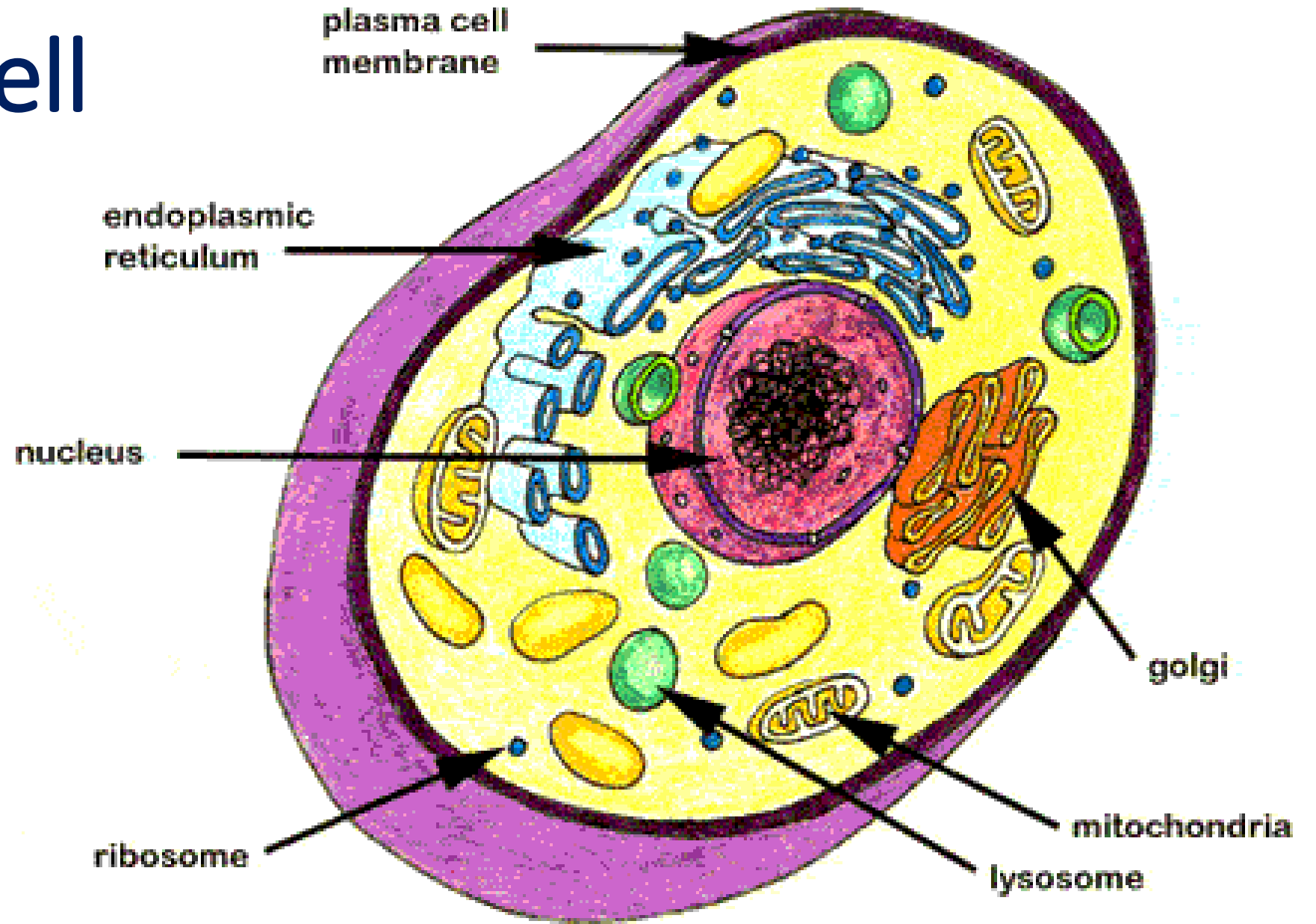
Lesson Objectives

- Explain how structural modifications of specialized cells are related to function.
- Explain the need for cell differentiation in multicellular organisms.
- Describe the main structures common to all eukaryotic cells.
- Distinguish between plant and animal cells.

Plant cell



Animal Cell



EUKARYOTIC

CELL VIDEO

What are the roles of the Nucleus, Cytoplasm, Mitochondria, and Cell Membrane in Eukaryotic Cells?

- **Prokaryotic cells do not contain a nucleus.**
- **Eukaryotic cells (plant and animal) have a nucleus , therefore they are EUKARYOTIC CELLS.**

NECLEUS

- Control center of the cell
- Stores the genetic (DNA) information
- Forms chromosomes during cell division
- Surrounded by a nuclear membrane

CYTOPLASM

- CYTOSOL is the liquid all organelles float inside of.
- Organelles are structures that provide certain functions.
- Mitochondria is where cellular respiration takes place.
- Vacuoles store water
- Chloroplast in plant cells is where photosynthesis takes place

Cell Membrane

- Outer boundary of the cell.
- Protects organelles and gives the cell its shape.
- It is “selectively permeable” as it allows some things through it.
- Plants have cell walls that make them more rigid.

How do plant cells and animal cells obtain energy?

- Plant cells use photosynthesis. ([See video](#))
- Photosynthesis converts carbon dioxide, water, and energy in sunlight into carbohydrate glucose.
- Photosynthesis can also release oxygen into the atmosphere

How do cells differentiate in multicellular organisms?

- Stem cells are cells that differentiate into a variety of cell types.
- Once a cell is differentiated, it cannot change its cell type.
- Cancer is caused when something goes wrong in cell suppression or expression (copy phase).

Why is cellular differentiation important?

- Cellular differentiation is the process where a cell changes from one cell type to another, usually the cell changes to a more specialized type.
- [Video](#)